What is claimed is:

1. A substrate for receiving multiple optical fibers, the substrate comprising:
an elongate member with at least two optically isolated grooves disposed on an exterior surface of the elongate member, wherein the optically isolated grooves are substantially parallel to a longitudinal axis of the elongate member, wherein each groove is for receiving multiple optical fibers.

2. The substrate as set forth in claim 1, wherein a cross-section of the exterior surface of the elongate member is selected from the group consisting of a generally circular cross-section, a generally rectangular cross-section, a generally oval cross-section, a generally triangular cross-section, a generally pentagonal cross-section, a generally hexagonal cross-section, and a generally octagonal cross-section.

3. The substrate as set forth in claim 1, wherein the elongate member includes two optically isolated grooves and the two optically isolated grooves are disposed on opposing sides of the elongate member.

4. The substrate as set forth in claim 1, wherein the surface of the elongate member in a first optically isolated groove is a recessed surface in relation to the exterior surface, wherein a cross-section of the recessed surface of the elongate member at the first optically isolated groove is selected from the group consisting of an inverted generally conical cross-section, an inverted generally half rectangular cross-section, and an inverted generally half circular cross-section.

5. The substrate as set forth in claim 4, wherein the cross-section of the recessed surface of the elongate member at the first optically isolated groove is the inverted generally conical cross-section, wherein the inverted generally conical cross-section is modified by flattening a point end of the inverted generally conical cross-section so that the point end is generally parallel in relation to an open end of the inverted generally conical cross-section.

6. The substrate as set forth in claim 4, wherein the cross-section of the recessed surface of the elongate member at the first optically isolated groove is the inverted generally half rectangular cross-section, wherein the inverted generally half rectangular cross-section includes three portions, including a first generally linear portion, a second generally linear portion attached to the first portion and generally perpendicular thereto, and a third generally linear portion attached to the second portion, generally perpendicular thereto, and generally parallel to the first portion.

7. The substrate as set forth in claim 4, wherein the cross-section of the recessed surface of the elongate member at the first optically isolated groove is the inverted generally half circular cross-section, wherein the inverted generally half circular cross-section is modified by extending the ends of an inverted generally half circular portion of the cross-section along lines generally tangential to the ends of the inverted generally half circular portion, wherein the modified cross-section includes three portions, including a first generally linear portion, a second inverted generally half circular portion attached to the first portion, and a third generally linear portion attached to the second portion and generally parallel to the first portion.

8. The substrate as set forth in claim 4, wherein the surface of the elongate member in a second optically isolated groove is a second recessed surface in relation to the exterior surface, wherein a cross-section of the second recessed surface of the elongate member at the second optically isolated groove is selected from the group consisting of an inverted generally conical cross-section, an inverted generally half rectangular cross-section, and an inverted generally half circular cross-section.

9. A substrate for receiving multiple fiber optic couplings, the substrate comprising:

an elongate member with at least two grooves disposed on a surface of the elongate member, wherein the grooves are substantially parallel to a longitudinal axis of the elongate member, wherein each groove is for receiving a fiber optic coupling.

10. The substrate as set forth in claim 9, wherein the elongate member is a made from material selected from the group consisting of glass, silicon, sapphire, and ceramic.

11. A substrate for receiving multiple optical fibers, the substrate comprising:

a first elongate member with a first exterior surface and a first mating surface, wherein a first optically isolated groove is disposed along the first mating surface, wherein the first groove is substantially parallel to a longitudinal axis of the first elongate member, wherein the first groove is for receiving multiple optical fibers; and

a second elongate member with a second exterior surface and a second mating surface, wherein the second mating surface is adapted to mate with the first mating surface, wherein a second optically isolated groove is disposed along the second mating surface, wherein the second groove is substantially parallel to a longitudinal axis of the second elongate member, wherein the second groove is for receiving multiple optical fibers.

12. The substrate as set forth in claim 11, wherein a cross-section of the first exterior surface is selected from the group consisting of a generally half circular cross-section, a generally half oval cross-section, a generally triangular cross-section, a generally rectangular cross-section, a generally half pentagonal cross-section, a generally half hexagonal cross-section, and a generally half octagonal cross-section.

13. The substrate as set forth in claim 12, wherein a cross-section of the second exterior surface is selected from the group consisting of a generally half circular cross-section, a generally half oval cross-section, a generally triangular cross-section, a generally rectangular cross-section, a generally half pentagonal cross-section, a generally half hexagonal cross-section, and a generally half octagonal cross-section.

14. The substrate as set forth in claim 11, wherein the first optically isolated groove is defined by a first recessed surface, the first recessed surface forming a part of the first mating surface, wherein a cross-section of the first recessed surface is selected

from the group consisting of an inverted generally half rectangular cross-section, an inverted generally conical cross-section, and an inverted generally half circular cross-section.

15. The substrate as set forth in claim 14, wherein the second optically isolated groove is defined by a second recessed surface, the second recessed surface forming a part of the second mating surface, wherein a cross-section of the second recessed surface is selected from the group consisting of an inverted generally half rectangular cross-section, an inverted generally conical cross-section, and an inverted generally half circular cross-section.

16. A substrate for receiving multiple fiber optic couplings, the substrate comprising:

a first elongate member with a first mating surface, wherein a first groove is disposed along the first mating surface and substantially parallel to a longitudinal axis of the first elongate member, wherein the first groove is for receiving a first fiber optic coupling; and

a second elongate member with a second mating surface, wherein the second mating surface is adapted to mate with the first mating surface, wherein a second groove is disposed along the second mating surface and substantially parallel to a longitudinal axis of the second elongate member, wherein the second groove is for receiving a second fiber optic coupling.

17. The substrate as set forth in claim 16, wherein the first and second elongate members are made from material selected from the group consisting of glass, silicon, sapphire, and ceramic.

18. A substrate for receiving multiple optical fibers, the substrate comprising:

a first elongate member with a first exterior surface and a first interior surface, wherein the first interior surface is defined by a first mating surface, a first interior portion, and a second mating surface, wherein a first optically isolated groove is disposed

along the first interior portion, wherein the first groove is substantially parallel to a longitudinal axis of the first elongate member, wherein the first groove is for receiving multiple optical fibers;

a second elongate member with a second exterior surface and a second interior surface, wherein the second interior surface is defined by a third mating surface, a second interior portion, and a fourth mating surface, wherein the third mating surface is adapted to mate with the second mating surface of the first elongate member, wherein a second optically isolated groove is disposed along the second interior portion, wherein the second groove is substantially parallel to a longitudinal axis of the second elongate member, wherein the second groove is for receiving multiple optical fibers;

a third elongate member with a third exterior surface and a third interior surface, wherein the third interior surface is defined by a fifth mating surface, a third interior portion, and a sixth mating surface, wherein the fifth mating surface is adapted to mate with the fourth mating surface of the second elongate member, wherein a third optically isolated groove is disposed along the third interior portion, wherein the third groove is substantially parallel to a longitudinal axis of the third elongate member, wherein the third groove is for receiving multiple optical fibers; and

a fourth elongate member with a fourth exterior surface and a fourth interior surface, wherein the fourth interior surface is defined by a seventh mating surface, a fourth interior portion, and an eighth mating surface, wherein the seventh mating surface is adapted to mate with the sixth mating surface of the third elongate member, wherein the eighth mating surface is adapted to mate with the first mating surface of the first elongate member, wherein a fourth optically isolated groove is disposed along the fourth interior portion, wherein the fourth groove is substantially parallel to a longitudinal axis of the fourth elongate member, wherein the fourth groove is for receiving multiple optical fibers.

19. The substrate as set forth in claim 18, wherein a cross-section of the first exterior surface is selected from the group consisting of a generally quarter octagonal cross-section, a generally quarter circular cross-section, a generally quarter oval cross-

section, a generally quarter square cross-section, and a generally quarter rectangular cross-section.

20. The substrate as set forth in claim 19, wherein a cross-section of the second exterior surface is selected from the group consisting of a generally quarter octagonal cross-section, a generally quarter circular cross-section, a generally quarter oval cross-section, a generally quarter square cross-section, and a generally quarter rectangular cross-section.

21. The substrate as set forth in claim 20, wherein a cross-section of the third exterior surface is selected from the group consisting of a generally quarter octagonal cross-section, a generally quarter circular cross-section, a generally quarter oval cross-section, a generally quarter square cross-section, and a generally quarter rectangular cross-section.

22. The substrate as set forth in claim 21, wherein a cross-section of the fourth exterior surface is selected from the group consisting of a generally quarter octagonal cross-section, a generally quarter circular cross-section, a generally quarter oval cross-section, a generally quarter square cross-section, and a generally quarter rectangular cross-section.

23. The substrate as set forth in claim 18, wherein the first optically isolated groove is defined by a first recessed surface, the first recessed surface forming a part of the first interior portion of the first interior surface, wherein a cross-section of the first recessed surface is selected from the group consisting of an inverted generally half rectangular cross-section, an inverted generally conical cross-section, and an inverted generally half circular cross-section.

24. The substrate as set forth in claim 23, wherein the second optically isolated groove is defined by a second recessed surface, the second recessed surface forming a part of the second interior portion of the second interior surface, wherein a

cross-section of the second recessed surface is selected from the group consisting of an inverted generally half rectangular cross-section, an inverted generally conical cross-section, and an inverted generally half circular cross-section.

25. The substrate as set forth in claim 24, wherein the third optically isolated groove is defined by a third recessed surface, the third recessed surface forming a part of the third interior portion of the third interior surface, wherein a cross-section of the third recessed surface is selected from the group consisting of an inverted generally half rectangular cross-section, an inverted generally conical cross-section, and an inverted generally half circular cross-section.

26. The substrate as set forth in claim 25, wherein the fourth optically isolated groove is defined by a fourth recessed surface, the fourth recessed surface forming a part of the fourth interior portion of the fourth interior surface, wherein a cross-section of the fourth recessed surface is selected from the group consisting of an inverted generally half rectangular cross-section, an inverted generally conical cross-section, and an inverted generally half circular cross-section.

27. A substrate for receiving multiple fiber optic couplings, the substrate comprising:

a first elongate member with a first exterior surface and a first interior surface, wherein the first interior surface includes a is defined by a first mating surface, a first interior portion, and a second mating surface, wherein a first groove is disposed along the first interior portion, wherein the first groove is substantially parallel to a longitudinal axis of the first elongate member, wherein the first groove is for receiving a first fiber optic coupling;

a second elongate member with a second exterior surface and a second interior surface, wherein the second interior surface is defined by a third mating surface, a second interior portion, and a fourth mating surface, wherein the third mating surface is adapted to mate with the second mating surface of the first elongate member, wherein a second groove is disposed along the second interior portion, wherein the second groove is

substantially parallel to a longitudinal axis of the second elongate member, wherein the second groove is for receiving a second fiber optic coupling;

a third elongate member with a third exterior surface and a third interior surface, wherein the third interior surface is defined by a fifth mating surface, a third interior portion, and a sixth mating surface, wherein the fifth mating surface is adapted to mate with the fourth mating surface of the second elongate member, wherein a third groove is disposed along the third interior portion, wherein the third groove is substantially parallel to a longitudinal axis of the third elongate member, wherein the third groove is for receiving a third fiber optic coupling; and

a fourth elongate member with a fourth exterior surface and a fourth interior surface, wherein the fourth interior surface is defined by a seventh mating surface, a fourth interior portion, and an eighth mating surface, wherein the seventh mating surface is adapted to mate with the sixth mating surface of the third elongate member, wherein the eighth mating surface is adapted to mate with the first mating surface of the first elongate member, wherein a fourth groove is disposed along the fourth interior portion, wherein the fourth groove is substantially parallel to a longitudinal axis of the fourth elongate member, wherein the fourth groove is for receiving a fourth fiber optic coupling.

28. The substrate as set forth in claim 27, wherein the first, second, third, and fourth elongate members are made from material selected from the group consisting of glass, silicon, sapphire, and ceramic.

29. A method for using a substrate as a component of a fiber optic device, comprising the steps of:

a) receiving at least two fiber optic cables in a first optically isolated groove of the substrate, each cable having a fiber jacket of the cable removed from a middle portion of the cable to expose an optical fiber within the cable;

b) connecting the exposed optical fibers of each cable together in a connecting region of the first groove to form a first fiber optic coupling with at least four coupled fiber optic cables extending therefrom, each coupled fiber optic cable having a

connection end joined in the first coupling and a lead end extending outward from the first groove;

c) selecting at least one of the coupled fiber optic cables from the first coupling and severing the selected coupled fiber optic cable(s) from the first coupling;

d) receiving at least two fiber optic cables in a second optically isolated groove of the substrate, each cable having a fiber jacket of the cable removed from a middle portion of the cable to expose an optical fiber within the cable;

e) connecting the exposed optical fibers of each cable together in a connecting region of the second groove to form a second fiber optic coupling with at least four coupled fiber optic cables extending therefrom, each coupled fiber optic cable having a connection end joined in the second coupling and a lead end extending outward from the second groove; and

f) selecting at least one of the coupled fiber optic cables from the second coupling and severing the selected coupled fiber optic cable(s) from the second coupling.

30. The method as set forth in claim 29, further comprising the following step:

g) packaging the substrate with the first and second fiber optic couplings in an enclosure with the lead ends of the fiber optic cables extending through openings of the enclosure.

31. The method as set forth in claim 29, further comprising the following steps:

g) receiving at least two fiber optic cables in a third optically isolated groove of the substrate, each cable having a fiber jacket of the cable removed from a middle portion of the cable to expose an optical fiber within the cable;

h) connecting the exposed optical fibers of each cable together in a connecting region of the third groove to form a third fiber optic coupling with at least four coupled fiber optic cables extending therefrom, each coupled fiber optic cable having a connection end joined in the third coupling and a lead end extending outward from the third groove; and

i) selecting at least one of the coupled fiber optic cables from the third coupling and severing the selected coupled fiber optic cable(s) from the third coupling.

32. The method as set forth in claim 31, further comprising the following steps:

j) receiving at least two fiber optic cables in a fourth optically isolated groove of the substrate, each cable having a fiber jacket of the cable removed from a middle portion of the cable to expose an optical fiber within the cable;

k) connecting the exposed optical fibers of each cable together in a connecting region of the fourth groove to form a fourth fiber optic coupling with at least four coupled fiber optic cables extending therefrom, each coupled fiber optic cable having a connection end joined in the fourth coupling and a lead end extending outward from the fourth groove; and

l) selecting at least one of the coupled fiber optic cables from the fourth coupling and severing the selected coupled fiber optic cable(s) from the fourth coupling.

33. A method for using a substrate as a component of a fiber optic device, comprising the steps of:

a) receiving at least two fiber optic cables in a first optically isolated groove of the substrate, each cable having a connection end and a lead end, each cable having a fiber jacket removed from the connection end of the cable to expose an optical fiber within the cable, wherein at least one electronic component is disposed in the first groove;

b) connecting the exposed optical fibers from the connection end of each cable to predetermined points on the electronic component(s) in a connecting region of the first groove;

c) receiving at least two fiber optic cables in a second optically isolated groove of the substrate, each cable having a connection end and a lead end, each cable having a fiber jacket removed from the connection end of the cable to expose an optical fiber within the cable, wherein at least one electronic component is disposed in the second groove; and

d) connecting the exposed optical fibers from the connection end of each cable to predetermined points on the electronic component(s) in a connecting region of the second groove.

34. The method as set forth in claim 33, further comprising the following step:

e) packaging the substrate with electronic components in an enclosure with the lead ends of the fiber optic cables extending through openings of the enclosure.

35. The method as set forth in claim 33, further comprising the following steps:

e) receiving at least two fiber optic cables in a third optically isolated groove of the substrate, each cable having a connection end and a lead end, each cable having a fiber jacket removed from the connection end of the cable to expose an optical fiber within the cable, wherein at least one electronic component is disposed in the third groove; and

f) connecting the exposed optical fibers from the connection end of each cable to predetermined points on the electronic component(s) in a connecting region of the third groove.

36. The method as set forth in claim 35, further comprising the following steps:

g) receiving at least two fiber optic cables in a fourth optically isolated groove of the substrate, each cable having a connection end and a lead end, each cable having a fiber jacket removed from the connection end of the cable to expose an optical fiber within the cable, wherein at least one electronic component is disposed in the fourth groove; and

h) connecting the exposed optical fibers from the connection end of each cable to predetermined points on the electronic component(s) in a connecting region of the fourth groove.